

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A process liquid supply nozzle comprising:

a substantially tubular nozzle provided with a discharge port for discharging a process liquid;

a substantially bowl-shaped nozzle holder provided with a through-hole into which the nozzle can be inserted;

a free space formed between an inner circumferential surface of the nozzle holder and an outer circumferential surface of the nozzle, at least a prescribed cleaning liquid being supplied into the free space; and

~~means for relatively moving the nozzle holder and the nozzle in a vertical direction such that the process liquid is discharged from the discharge port of the nozzle in a state that the discharge port of the nozzle protrudes downward from the through-hole, and the nozzle is cleaned with a cleaning liquid in a state that the nozzle is housed in the nozzle holder~~

a nozzle holder driving mechanism configured to drive the nozzle holder relative to the nozzle in a vertical direction between a position where the nozzle is accommodated in the nozzle holder, and a position where the nozzle protrudes from the through-hole; and

controlling means for controlling a supply mechanism of the cleaning liquid and supply of a process liquid, such that the cleaning liquid is supplied into the free space to clean the nozzle when the nozzle holder is placed at the position where the nozzle is accommodated in the nozzle holder, and the process liquid is discharged from the nozzle when the nozzle holder is placed at the position where the nozzle protrudes from the through-hole.

2. (Original) The process liquid supply nozzle according to claim 1, wherein a gas is supplied into the free space under the state that the nozzle is housed in the nozzle holder.

3. (Currently Amended) ~~The A~~ process liquid supply nozzle ~~according to claim 1~~ comprising:

a substantially tubular nozzle provided with a discharge port for discharging a process liquid;

a substantially bowl-shaped nozzle holder provided with a through-hole into which the nozzle can be inserted;

a free space formed between an inner circumferential surface of the nozzle holder and an outer circumferential surface of the nozzle, at least a prescribed cleaning liquid being supplied into the free space; and

means for relatively moving the nozzle holder and the nozzle in a vertical direction such that the process liquid is discharged from the discharge port of the nozzle in a state that the discharge port of the nozzle protrudes downward from the through-hole, and the nozzle is cleaned with a cleaning liquid in a state that the nozzle is housed in the nozzle holder,

wherein a spiral groove is formed on the inner circumferential surface of the nozzle holder.

4. (Currently Amended) ~~The A~~ process liquid supply nozzle ~~according to claim 1~~ comprising:

a substantially tubular nozzle provided with a discharge port for discharging a process liquid;

a substantially bowl-shaped nozzle holder provided with a through-hole into which

the nozzle can be inserted;

a free space formed between an inner circumferential surface of the nozzle holder and an outer circumferential surface of the nozzle, at least a prescribed cleaning liquid being supplied into the free space; and

means for relatively moving the nozzle holder and the nozzle in a vertical direction such that the process liquid is discharged from the discharge port of the nozzle in a state that the discharge port of the nozzle protrudes downward from the through-hole, and the nozzle is cleaned with a cleaning liquid in a state that the nozzle is housed in the nozzle holder,

wherein the outer circumferential surface of the nozzle is rough and exhibits a hydrophilicity.

5. (Previously Presented) A process liquid supply nozzle comprising:

a substantially tubular nozzle provided with a discharge port for discharging a process liquid;

a substantially bowl-shaped nozzle holder provided with a hole portion having a regularly polygonal planar shape into which the nozzle can be inserted; and

a free space formed between an outer circumferential surface of the nozzle and an inner circumferential surface of the nozzle holder, at least a prescribed cleaning liquid being supplied into the free space,

wherein the nozzle is arranged to extend through a central portion of the hole portion, and the outer circumferential surface of the nozzle is substantially in a point-to-point contact with a wall of the hole portion in a midpoint of each side of the regularly polygonal planar shape.

6. (Canceled)

7. (Previously Presented) The process liquid supply nozzle according to claim 5, further comprising means for rotating at least one of the nozzle and the nozzle holder by a prescribed angle.

8. (Original) The process liquid supply nozzle according to claim 5, wherein a spiral groove is formed on the inner circumferential surface of the nozzle holder.

9. (Original) The process liquid supply nozzle according to claim 5, wherein the outer circumferential surface of the nozzle is rough and exhibits a hydrophilicity.

10.-11. (Canceled)

12. (Currently Amended) A process liquid supply device, comprising:

a process liquid supply nozzle including a substantially tubular nozzle provided with a discharge port for discharging a process liquid, a substantially bowl-shaped nozzle holder provided with a through-hole into which the nozzle can be inserted, and a free space formed between an inner circumferential surface of the nozzle holder and an outer circumferential surface of the nozzle;

a process liquid supply mechanism for supplying the process liquid into the nozzle;

a cleaning liquid supply mechanism for supplying a prescribed cleaning liquid into the free space for cleaning the nozzle; and

~~a nozzle-moving mechanism for relatively moving the nozzle and the nozzle holder in a vertical direction such that the process liquid is discharged from the discharge port of the nozzle in a state that the discharge port protrudes downward from the through-hole of the nozzle holder or the nozzle is cleaned with the cleaning liquid in a state that the nozzle is~~

housed in the nozzle holder

a nozzle holder driving mechanism configured to drive the nozzle holder relative to the nozzle in a vertical direction between a position where the nozzle is accommodated in the nozzle holder, and a position where the nozzle protrudes from the through-hole; and

controlling means for controlling the cleaning liquid supply mechanism and the process liquid supply mechanism, such that the cleaning liquid is supplied into the free space to clean the nozzle when the nozzle holder is placed at the position where the nozzle is accommodated in the nozzle holder, and the process liquid is discharged from the nozzle when the nozzle holder is placed at the position where the nozzle protrudes from the through-hole.

13. (Currently Amended) ~~The~~ A process liquid supply device ~~according to claim 12~~ comprising:

a process liquid supply nozzle including a substantially tubular nozzle provided with a discharge port for discharging a process liquid, a substantially bowl-shaped nozzle holder provided with a through-hole into which the nozzle can be inserted, and a free space formed between an inner circumferential surface of the nozzle holder and an outer circumferential surface of the nozzle;

a process liquid supply mechanism for supplying the process liquid into the nozzle;

a cleaning liquid supply mechanism for supplying a prescribed cleaning liquid into the free space for cleaning the nozzle; and

a nozzle moving mechanism for relatively moving the nozzle and the nozzle holder in a vertical direction such that the process liquid is discharged from the discharge port of the

nozzle in a state that the discharge port protrudes downward from the through-hole of the nozzle holder or the nozzle is cleaned with the cleaning liquid in a state that the nozzle is housed in the nozzle holder,

further comprising a gas supply mechanism for supplying a prescribed gas into the free space.

14. (Currently Amended) ~~The A~~ process liquid supply device ~~according to claim 12~~ comprising:

a process liquid supply nozzle including a substantially tubular nozzle provided with a discharge port for discharging a process liquid, a substantially bowl-shaped nozzle holder provided with a through-hole into which the nozzle can be inserted, and a free space formed between an inner circumferential surface of the nozzle holder and an outer circumferential surface of the nozzle;

a process liquid supply mechanism for supplying the process liquid into the nozzle;

a cleaning liquid supply mechanism for supplying a prescribed cleaning liquid into the free space for cleaning the nozzle; and

a nozzle moving mechanism for relatively moving the nozzle and the nozzle holder in a vertical direction such that the process liquid is discharged from the discharge port of the nozzle in a state that the discharge port protrudes downward from the through-hole of the nozzle holder or the nozzle is cleaned with the cleaning liquid in a state that the nozzle is housed in the nozzle holder,

wherein a spiral groove is formed on the inner circumferential surface of the nozzle holder.

15. (Currently Amended) ~~The A~~ process liquid supply device ~~according to claim 12~~ comprising:

a process liquid supply nozzle including a substantially tubular nozzle provided with a discharge port for discharging a process liquid, a substantially bowl-shaped nozzle holder provided with a through-hole into which the nozzle can be inserted, and a free space formed between an inner circumferential surface of the nozzle holder and an outer circumferential surface of the nozzle;

a process liquid supply mechanism for supplying the process liquid into the nozzle;

a cleaning liquid supply mechanism for supplying a prescribed cleaning liquid into the free space for cleaning the nozzle; and

a nozzle moving mechanism for relatively moving the nozzle and the nozzle holder in a vertical direction such that the process liquid is discharged from the discharge port of the nozzle in a state that the discharge port protrudes downward from the through-hole of the nozzle holder or the nozzle is cleaned with the cleaning liquid in a state that the nozzle is housed in the nozzle holder,

wherein the outer circumferential surface of the nozzle is rough and exhibits a hydrophilicity.

16. (Previously Presented) A process liquid supply device, comprising:

a process liquid supply nozzle including a substantially tubular nozzle provided with a discharge port for discharging a prescribed process liquid, a substantially bowl-shaped nozzle holder provided with a hole portion having a regularly polygonal planar shape into which the nozzle can be inserted, and a free space formed between an inner circumferential surface of

the nozzle holder and an outer circumferential surface of the nozzle, the nozzle being arranged to extend through a central portion of the hole portion, and the outer circumferential surface of the nozzle being substantially in a point-to-point contact with a wall of the hole portion in a midpoint of each side of the regularly polygonal planar shape;

a process liquid supply mechanism for supplying the prescribed process liquid into the nozzle; and

a cleaning liquid supply mechanism for supplying a prescribed cleaning liquid into the free space for cleaning the nozzle.

17. (Canceled)

18. (Original) The process liquid supply device according to claim 16, further comprising a rotating mechanism for rotating at least one of the nozzle and the nozzle holder by a prescribed angle.

19. (Original) The process liquid supply device according to claim 16, further comprising a gas supply mechanism for supplying a prescribed gas into the free space.

20. (Original) The process liquid supply device according to claim 16, wherein a spiral groove is formed on the inner circumferential surface of the nozzle holder.

21. (Original) The process liquid supply device according to claim 16, wherein the outer circumferential surface of the nozzle is rough and exhibits a hydrophilicity.

22.-31. (Canceled)